USER MANUAL

—CE-485Z/232Z WIRELESS MODULE

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1. Performance description

CE-48Z5/232Z wireless module is full zigbee wireless communication equipment， integrated with zigbee RF transceiver and MCU， excellence with far distance communication, excellently anti-jamming capacity. Enables point to point, one-to-multipoint, multi-to-multipoint between the transparent transmission of data between devices; may form a star, tree and mesh network structure.

The zigbee network is constituted of the center node and access node, the center node is PAN_Coord, the access node is router or end device. you should install the PAN_Coord first, then install the access node

CE-485Z/232Z wireless module can send the data by broadcasting, Except point to point data communications, it also can communicate between the multi-point data, serial communication is simple and convenient, it can greatly short modules embedded in the process of matching time

CE-485Z/232Z is made up of center coordinator, router and end node.. These three devices have different net functions. Center coordinator is the center node of net. It is responsible for network maintenance and management. Router is responsible for the data relaying and end node is only responsible for TX and RX. These three kinds of devices go all the ways in hardware structure. Just the embedded software is different, and different functions can be realized simply by jumper settings or software configuration of the device.

2. Spec.

Option	Performance	CE-485Z/232Z parameter
Wireless network	Communication distance	100m—2000m
	Network topology	Star, line, mesh, tree
	addressing	IEEE802.15.4/ZIGBEE standard address
	Network ID	255
Data interface	Max packet	256 bytes
	Data interface	RS485、RS232
	Serial ports signal	TXD, RXD, GND
	Serial rate	1200 ~ 38400 bps（9600 bps default）
	Parity type	None, Even, Odd(None default)
	Data bit	7, 8(8 default)
	Parity bit	1
RF MODEM	modulation	DSSS (O-QPSK)
	frequency	2.405GHz~ 2.480GHz
	Wireless channel	16
	RX sensitivity	-94 dbm

	RF power out r	-27dBm~25dBm
	Antenna	SMA
	Conflict prevention	CSMA-CA and CSMA-CA of GTS
Power consumption	Voltage input	DC 5V
	max TX current	70 mA
	max RX current	55 mA
	Standby	10 mA
	Saving	110 uA
	Hibernate	30 uA
ENVIRONMENT	Working temperature	-40℃ ~ 85℃
	storage temperature	-55℃ ~ 125℃

3. Case Style and Connection

Fig. 3.1 Case style

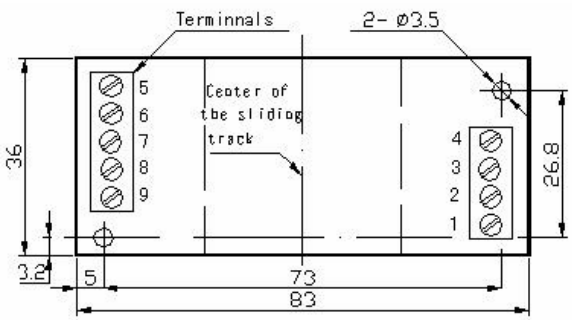


Fig. 3.2 Installation

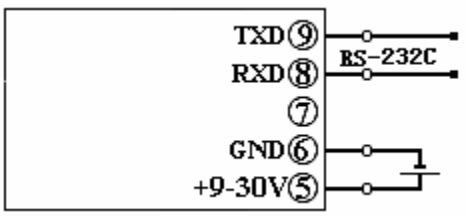


Fig. 3.3 CE-232Z

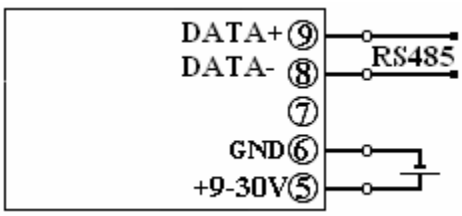
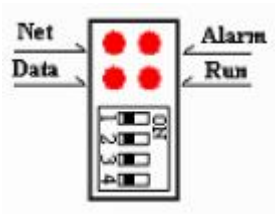


Fig. 3.4 CE-458Z

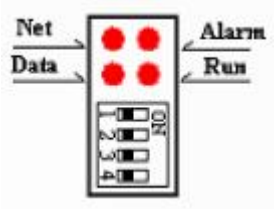
4. LED Indication

4.1 LED indication

LED	Indication	Description	Diagram
Run	Twinkle every 1s	Run OK	
	Off	Not run, energy data power failure or system failure	
Network	ON	Connect net is OK	
	OFF	Not connect net	
Alarm	OFF	Run OK	
	ON	System error or special mode	
Data	ON/OFF	Send or receive the data for one time	

4.2 Pull-switch setting

（It is effective when the switch is closed, ON stands for closing, the diagram stands for disconnecting.）

Switch NO.	State	Function	Diagram
1	ON	System reposition, Level-triggered, closed effective	
2	ON	Enter system config. mode	
3	ON	Type of module access node：end node	
4	ON	Type of module access node：center node	
3、4	OFF	Type of module access node：break router node off	
3、4	ON at the same time	Forbidden, please select only one	

5. Module configuration parameters:

5.1 Initialization setting

1. Open the computer's super end. The setting should be: baud rate 38400, data bit: 8, checkout none, stop bit 1
2. Pull NO.2 switch to ON（closed，refer to table 4.2）;
3. Power on, enter the system config mode；Select 1-Chinese， 2-English on super end.,. Enter the menu, and then refer to 5.2-5.13.

5.2 MAC_ADDR CONFIG

MAC_ADDR	Add	Config	Remark
MAC_ADDR	(H)0000-FFFE	PAN_Coord is 0000	Must exclusive in same net。

Every CE-485Z has uniquesign of addr.. Same node cannot exist in one network. The addr. is 2 byte hex.

5.3 Node type setting

NODE_TYPE	Type	Config	Remark
PAN_Coord	Center node		Center node must exist in net
ROUTER	Router	Include the function of end code	
END_DEVICE	End node		

CE-485Z has 3 types: center node, router, end node. When select jumper settings through software config, the node type will be selected by the NO.1 and NO.2 bit of pull-switch.

5.4 Setting of net type

NET_TYPE	Net type	Config	Remark
MESH	Mesh	Master and slave net. Center node must exclusive in same net.	Net type must exclusive in same net。
STAR	Star		
LINE_1	line ID=1		
LINE_2	Line ID=2		
LINE_3	Line ID=3		
LINE_4	Line ID=4		
PEER	Peer	No master and slave net and no center node	

5.5 Setting of network ID

NODE_TYPE	ID	Config	Remark
NET_ID	00-FE	Keep the ID unified in the same net。	

5.6 Channel config.

CHANNEL Option	Config.	Remark
0-F	0 : 2.405GHz 1 : 2.410GHz 2 : 2.415GHz 3 : 2.420GHz 4 : 2.425GHz 5 : 2.430GHz 6 : 2.435GHz 7 : 2.440GHz 8 : 2.445GHz 9 : 2.450GHz A : 2.455GHz B : 2.460GHz C : 2.465GHz D : 2.470GHz E : 2.475GHz F : 2.480GHz	In the same one system, the channels of all modules must be in the same setting. Channel 9, E and F channel are recommended. They can avoid WIFI.。
G	AUTO，select the best channel automatically	

5.7 Data type setting

DATA_TYPE Option	Data type	Config.
ASCII	ASCII	Just need to be set with data sending to destination address. And there is no need to send when in broadcasting sending mode.
HEX	Hex	

5.8 TX type setting

TX_TYPE Option	Mode	Config.	Remark
BROADCAST	Broadcast	No destination address	Addr. is 2 byte MAC addr., add it in the front of data packet.
MASTER-SLAVE	Master and slave	For the center node, a destination address is needed. For other nodes, there is no destination address. Default sends data to center node.	
POINT-POINT	Point to point	destination address is necessary	

5.9 Baud rate setting

BAUD_RATE Option	Baud rate	Config.
1200-115200	1200-115200	Select the matching baud rate

5.10 Parity setting

DATA_PARITY Option	Type	Config.
NONE	No parity	Select the matching type
EVEN	Even parity	
ODD	Odd parity	

5.11 Data bit setting

DATA_TYPE Option	Data type setting	Config.
7+1+1	Data 7 bit +parity 1 bit + stop 1 bit	Combine with parity setting selection.
8+0+1	Data 8 bit+ parity 1 bit +stop 1 bit	
8+1+1	Data 8 bit +parity 1 bit +stop 1bit	

5.12 Serial ports time out setting

TIME_OUT Option	Config.	Remark
TIME_OUT	1-255ms（hex display）	Serial ports time out

5.13 Address of data source setting

SRC_ADR Option	Add. of data source	Config.
NOT OUTPUT	No add. output	The origin adds. of data package
HEX	Hex output	
ASCII	ASCII output	

Format of HEX output addr.： 2 byte source addr. + effective data；

Format of ASCII output addr.: 4 byte source addr. + effective data；

6. TX Type Config

6.1 TX Mode

Type	TX Mode	Option	Remark
Center node	Broadcast	All non-center nodes in the net	Send the data directly
	Master and slave or point to point	Nodes with destination address	Destination address + data
Non-center node	Broadcast	All non-center nodes in the net	Send the data directly
	Master and slave	Center node	Send the data directly
	Point to point	Nodes with destination address.	Destination address + data

6.2 Frame format of data sending

TX Mode	Data code	Format of data frame
Send the data directly		No change
Destination address + data	Hex destination address	2 byte destination address + data
	ASCII destination address + data	4 byte destination address + data

7、Notice:

1. Please do not install this product outdoors or wet environments.
2. Please do not install this product in metal enclosure
3. Please install it in clear environments without blocking.
4. Please do anti-light protection if necessary.